

ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

Dear Sir:

February 18th, 1958
Vol. 19...No. 1

Two new proposals have been made by industrial firms to construct the nuclear reactor and conventional fuel-fired superheater for the 22,000-kw power plant of Rural Cooperative Power Association, Elk River, Minn. The proposals, which include design, development, construction and testing of a boiling water reactor, and superheater, were made by General Electric Co., and ACF Industries, to the USAEC which had issued invitation October 1957. (American Machine & Foundry Co., which had been originally selected by the cooperative to build the reactor, had withdrawn because of rising costs. Its initial figure was \$5,686,000; AMF said increasing costs had made this not feasible. Withdrawal of AMF resulted in USAEC's new October 1957 invitation.) (Other CONTRACT NEWS, p. 2 this LETTER.)

Some \$7,500,000 of seven year subordinated notes, due 1965, and 78,000 common shares, have been privately placed by Kermac Nuclear Fuels Corp. Kermac is jointly owned by Kerr-McGee Oil Industries, Inc.; Pacific Uranium Mines Co.; and Anderson Development Corp. Company said proceeds will be used to finance construction of uranium ore processing mill, to develop Kermac's uranium ground in New Mexico, and for working capital. Financing was arranged through Lehman Brothers; Straus, Blosser & McDowell; and Bache & Co. (Other FINANCIAL NEWS, p. 3 this LETTER.)

Nuclear powered surface vessels are under design by seven industrial groups in Japan, according to the Atomic Energy Commission of that country. The ships range from a 2,500-ton training craft to a 65,000-ton tanker. Additionally, four other groups have research and development programs on nuclear propulsion systems for ocean going vessels. The Commission coordinates the eleven groups.

Fission products market survey is now being conducted under technical direction of the chemical processing department of General Electric Co., contract-operator at Hanford Works, Richland, Washington. Initiated by the USAEC's Hanford operations office, objectives are to estimate growth patterns of the markets for irradiation sources of all types, and to determine how fission products can fit into such markets. The consulting firm of Arthur D. Little, Inc., Cambridge, Mass., is assisting in the survey which is expected to be completed in about ten months. (Other PRODUCT, PROCESS, INSTRUMENT NEWS, p. 5 this LETTER.)

Temporary suspension order has been issued against Radiation Products Co., Dallas, Texas, by the USAEC; the firm had received USAEC license to encapsulate and distribute cobalt-60 and cesium-137. Suspension of the firm, which requires it to cease operations involving radioactive material, was based on sales made by the firm of one curie cobalt-60 sources, to unlicensed persons. Public hearing in the matter is scheduled for February 24, in Dallas, Texas. (Other BUSINESS NEWS, p. 2.)

Nine Institutes on Nuclear Energy for engineering educators are scheduled for this Summer under sponsorship of the USAEC and American Society for Engineering Education. Each institute will be combined programs of a university and a national laboratory. Information from: W. Leighton Collins, Secretary ASEE, University of Illinois, Urbana, Ill. (Other MEETINGS, COURSES, CONFERENCES, p. 4.)

- 2 -

ATOMIC ENERGY BUSINESS NEWS...

NEW FACILITY COMPLETED:- New facility, which will be used for large-scale production of fuel elements for nuclear power reactors, has been completed by General Electric Co. at San Jose, Calif. Addition of the new facility provides GE's atomic power equipment department at San Jose with one of the largest nuclear fuel manufacturing operations in the U.S. When in full operation, it will be able to produce 300,000 uranium pellets per month. More than \$1 million was spent by GE for equipment for use in the operation, and includes uranium powder blending machinery, presses for forming the powder into pellets, baking ovens, and equipment for loading and welding the metal cladding tubes.

GRANTS MADE:- Grants of \$350,000 each were approved by the USAEC for the Greek Atomic Energy Commission, and the Italian National Committee for Nuclear Research (CNRN), to defray costs of nuclear research reactors. The Greek facilities, which will be located near Athens, are being manufactured by AMF Atomics, with Babcock & Wilcox fabricating the fuel element. The Italian reactor, which will be located at CNRN's new nuclear research center at Ispra, is being built by ACF Industries, Inc. Preliminary design work on the Center's buildings is being done by Vitro Engineering division of Vitro Corp., New York.

BIDS ASKED, CONTRACTS LET...on nuclear projects & jobs...

BIDS ASKED:- Bids have been asked by the USAEC's Hanford Operations Office, Richland, Washington, for Phase One construction of the \$15 million plutonium recycle test reactor at Hanford. The work includes construction of steel containment shell, storage facilities, electrical work, etc. (Bids had previously been asked for construction of temporary facilities for this reactor; this LETTER, Feb. 4, 1958, p.5)

CONTRACTS AWARDED:- Contract in amount of \$18,630,000 to supply reactor components, except cores, for the U. S. Navy's three nuclear-powered fleet ballistic missile submarines has been awarded Westinghouse Electric Corp., Pittsburgh. (The three projected Polaris missile submarines of the Navy are planned for completion by 1960. They are designed to carry about sixteen, thirty-foot intermediate range ballistic missiles; with displacements of 5,600 tons, they will be 380-ft. in length and 33-ft. wide at the beam. Two will be built at Electric Boat's Groton, Conn., yards and the other by the Mare Island Naval Shipyard, in California. Cost of the first Polaris submarine to be built by Electric Boat (which is division of General Dynamics Corp.) is estimated at \$105 million to \$110 million. Others are expected to cost \$85 million to \$90 million.)

Contract held by Edgerton, Germeshausen & Grier, Inc., with USAEC, has now been extended by the Commission's Albuquerque, N.M., office. Under the contract extension, the company will install and operate some of the control and measuring systems planned for use in the testing of nuclear reactors, in connection with development of nuclear rocket propulsion systems. The project is under the direction of Los Alamos Scientific Laboratory. (Tests will be conducted at the USAEC's Nevada test site where EG&G has been handling sequence timing, instrumentation and technical photography in tests of nuclear devices conducted there.)

NEW BOOKS, OTHER PUBLICATIONS...on nuclear energy subjects...

Major Activities in the Atomic Energy Programs--July through Dec., 1957. Semi-annual report (25rd) of the USAEC to Congress. (\$1.25)..... Theoretical Possibilities and Consequences of Major Accidents in Large Nuclear Power Plants. Study made at Brookhaven National Laboratory, March, 1957. (65¢) --Superintendent of Documents, Wash. 25, D.C.

Uranium Milling Technology. Covers newer developments in the field. 105 pages. --Uranium Institute of America, Uranium Center Bldg., Grand Junction, Colo. (\$5.00)

Symposium on Nuclear Energy. Proceedings of symposium sponsored by Institution of Chemical Engineers (Gt. Britain), January 21, 1958. --Institution of Chem. Eng., 16, Belgrave Sq., London SW1, England (10s)

NOTES:- List and Index of American Standards is 67 page booklet issued by American Standards Association listing some 1723 national standards approved by the ASA; includes the first American standard for nuclear energy. Available free from ASA, 70 E. 45th St., New York 17, N.Y.

- 5 -

ATOMIC ENERGY FINANCIAL NEWS...

MORTGAGE BONDS SOLD BY URANIUM MINING CONCERN:- Private placement has been arranged by Stanrock Uranium Mines on some \$3 million in first mortgage bonds and 300,000 shares of common stock. Stanrock, with properties in the Blind River area of Ontario, Canada, also has increased a working capital loan from a Canadian bank to \$3 million from \$2.5 million previously provided. Stanrock said that construction costs had exceeded original estimates, making the new financing necessary.

CONTROLLING INTEREST ACQUIRED:- Controlling interest in Electronized Chemicals Corp., New York, has been acquired by High Voltage Engineering Corp., Burlington, Mass. In exchange for Electronized Chemicals stock, High Voltage has transferred its domestic electron processing patents to the firm. (Electronized Chemicals, which has been doing electron processing research for a number of years, has U. S. and foreign patents which supplement High Voltage patents in the same field. It had been initially financed by a group headed by Arthur P. Davis, who had been its president. Mr. Davis remains as a director.)

NEW FINANCING BY CANADIAN URANIUM PRODUCER:- Northspan Uranium Mines, which holds contract to deliver \$275 million in uranium precipitates to Eldorado Mining & Refining, has now arranged additional financing (without issue of capital shares) to complete treatment plant at its three operating properties. Total estimated costs of plant and related capital items are now \$90,210,000. In its original financing, some \$79,954,000 had been raised. Balance was provided by Rio Tinto Mining Co. of Canada, and its parent Tinto Holdings, Ltd., a subsidiary of Rio Tinto Co., London, England. (Control of Northspan is by Rio Tinto Mining Co. of Canada, Ltd. Northspan has realized \$8,027,500 on the sale of 6½% debentures due Dec. 31, 1963 to Rio Tinto Mining Co., and is also arranging with a Canadian Bank to provide operating funds as required.)

STOCKHOLDING CHANGES SHOWN:- Changes in stockholdings made recently by officers, directors and large stockholders include purchase by Engelhard Industries, Inc., of 4,900 shares of class A common stock of Nuclear Corp. of America making direct ownership 1,101,800 shares..... Paul Westerfield, director, Northspan Uranium Mines, sold 8,000 common shares reducing direct holdings to 33,200; his indirect holdings total 12,000 shares.

ATOMIC ENERGY PATENT DIGEST...latest grants & other news...

ISSUED February 4, 1958 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Arrangement including a betatron for radiation of the human body. R. Wideroe, inventor. No. 2,822,478 assigned to Brown, Boveri, & Cie, Baden, Switzerland. (2) Combination electron X-ray beam tube for a betatron. D. T. Scag, inventor. No. 2,822,490 assigned to Allis-Chalmers Manufacturing Co., Milwaukee, Wisc. (3) Electron accelerator tube. R. Wideroe, inventor. No. 2,822,491 assigned to Brown, Boveri & Cie, Baden, Switzerland.

ISSUED February 4, 1958 to GOVERNMENT ORGANIZATIONS:- (1) Method of separating plutonium. H. S. Brown, O. F. Hill, inventors. No. 2,822,239 assigned to USAEC. (2) Decontamination of uranium. H. M. Feder, N. R. Chellew, inventors. No. 2,822,260 assigned to USAEC. (3) Negative gate generator. C. S. Jones, T. E. Eaton, inventors. No. 2,822,472 assigned to USAEC. (4) Pulse duration lengthener. W. R. Aiken, inventor. No. 2,822,473 assigned to USAEC. (5) Radiation counter. W. W. Goldsworthy, inventor. No. 2,822,479 assigned to USAEC.

ISSUED February 11, 1958 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- (1) Method of irradiating ship's cargo. K. H. Morganstern, inventor. No. 2,822,776 assigned to Nuclear Corp. of America, New York, N.Y.

ISSUED February 11, 1958 to GOVERNMENT ORGANIZATIONS:- (1) Injection molding apparatus. G. M. Lobell, inventor. No. 2,822,578 assigned to USAEC. (2) Method of preparing sintered zirconium metal from its hydrides. R. P. Angier, inventor. No. 2,823,116 assigned to USAEC. (3) Detection of coating failures in a neutronic reactor. A. H. Snell, S. K. Allison, inventors. No. 2,823,179 assigned to USAEC. (4) Method of locating grounds. K. Macleish, inventor. No. 2,823,350 assigned to USAEC.

PATENT NOTES:- Preliminary patent application, covering method of direct conversion of nuclear heat to electricity utilizing thermocouples, has been filed in German patent office. Application, number DAS 1,021,962 has been assigned to Siemens-Schuckertwerke, Erlangen.

- 4 -

RAW MATERIALS...prospecting, mining, marketing...

UNITED STATES:- The USAEC is considering the release of uranium to a free market, including foreign buyers, Jesse C. Johnson, director of raw materials division of the USAEC told the National Western Mining Conference last fortnight in Denver, Colo. Mr. Johnson noted that since domestic concentrate is now produced in greater quantity than required for USAEC contracts, one of the principal reasons for the Commission being the sole buyer has been removed. He said it would be necessary for the Commission to set up conditions for a domestic or foreign buyer to qualify for a license to buy uranium concentrates. The main problem would be export control, he observed.

Pointing out that U.S. uranium reserves are among the largest in the Western nations, W. A. W. Krebs of Arthur D. Little, Inc., Cambridge, Mass., told the Conference (as above) that the 23 privately-owned uranium mills in the U.S. operating or scheduled for operation by 1959 have a sure-footed short term market since they are all under firm contract to the USAEC for full capacity operation for periods running into the early 1960's. As such contracts expire, U. S. mills are guaranteed a government market for all uranium concentrate produced, within certain limitations, up through Dec. 31, 1966, he stated. (Mr. Krebs noted that the production from about 90% of Canadian milling capacity is also under firm contract for purchase by the USAEC through Mar. 31, 1962, while 8% of this Canadian capacity is firmly contracted for by the United Kingdom Atomic Energy Authority. In South Africa, he said, the 17 mills there are under contract for their entire capacity to the Combined Development Agency, a joint operation of the U. S. and the U.K., for 10-year periods, the earliest expiring in October 1962 and the latest on Dec. 31, 1966.)

Uranium concentrates produced in the U.S. and sold to the USAEC in 1957 totalled 8,640-tons of uranium oxide, according to figures released by the Commission. The total includes 146 tons produced as by-product in the chemical processing of phosphate rock in Florida and Illinois; from the treatment of Idaho euxenite; and from reprocessing of refinery residues at Vitro Corp.'s Canonsburg, Pa., plant. The Commission bought from Canadian, African, and other sources some 11,826-tons, making a total for the year of 20,466-tons of concentrate purchased.

CANADA:- Canada produced 6,687-tons of uranium concentrates in 1957, Trade and Commerce Minister Gordon Churchill said in the Commons last fortnight in Toronto. Some 13,000-tons will be produced in 1958 and production will rise to about 15,500 tons in 1959, he stated. Mr. Churchill pointed out that while the bulk of the output goes to the U.S. under an arrangement made in 1948, a contract with a value of approximately \$115,000,000 was made with the U. K. Atomic Energy Authority to deliver concentrates to Britain over a period ending Mar. 31, 1962 by diversion from existing contracts. Additionally, he said, uranium with a value of \$105,000,000 will be delivered to Britain over the period April 1, 1962 to Mar. 31, 1963. Negotiations are also underway to supply Britain with Canadian uranium over the period April 1, 1963 to Dec. 31, 1966, Mr. Churchill stated. (Canada is also actively selling uranium to other nations: it has entered into a pact with the Federal Republic of Germany, and has negotiations underway for an agreement with the Confederation of Switzerland.)

AUSTRALIA:- The Rum Jungle uranium workings in the Northern Territory of Australia produced 541,652-lb. of uranium oxide in 1957, according to Australian Territories Minister Paul Hasluck. Apart from Rum Jungle production, the value of uranium bearing minerals from the Northern Territory in 1957 totalled \$475,000 (Australian), he said.

MEETINGS, COURSES, CONFERENCES...on nuclear subjects...

CONFERENCE:- Utilization of Atomic Energy will be first annual conference on the subject to be held at Texas A.&M. College, Tex. Sessions will cover reactors, radioisotopes, etc. Further information from: R. E. Wainerdi, at Texas A. & M.

MEETINGS:- Nuclear Congress, sponsored by some 30 organizations and managed by the American Institute of Chemical Engineers, is being held Mar. 17-21, 1958, in Chicago, Ill. Sessions will be coincident with the 1958 Atomfair. Complete schedules from: Joel Henry, AIChE, 25 W. 45th St., New York 38, N.Y.

COURSES:- Atomic Energy Course for Management is being held April 14-19 by National Industrial Conference Board, at Westchester Country Club, Rye, N.Y. Information from: J. I. McMahon, NICB, 460 Park Ave., New York 22, N.Y.

- 5 -

PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

NEW PRODUCTS FROM MANUFACTURERS:- New miniature cold cathode decade counter tube, type 7155, is the third in this manufacturer's line of high speed counter tubes. Since it is in a T-5 $\frac{1}{2}$ bulb, it should find applications where size and weight are important factors, when used in nuclear and radiation measuring equipment, counter and scaler devices, etc. --Sylvania Electric Products, Inc., New York 19, N.Y.

Model 3303 is a 100 channel memory core analyzer designed to provide accurate definitive analysis at low cost. Manufacturer states that it provides linearity better than 0.5%. The instrument gives cathode ray tube data presentation; provides background subtraction; and accommodates a decimal printer. --Radiation Instrument Development Laboratory, Inc., Chicago 21, Ill.

Six new tritium-labeled compounds have been added to the list of stock item radiochemicals offered by this manufacturer and processor. The labeled compounds include styrene; stearic acid; sodium acetate; methyl iodide; methanol; and estradiol beta acetate. --Tracerlab, Inc., Waltham 54, Mass.

MANUFACTURERS' NEWS:- R. S. Landauer Jr. & Co., furnishing radiation monitoring services, has moved to new and larger quarters at 3920 216th St., Matteson, Ill. Electromechanical Products, Agincourt, Ontario, Canada, has been appointed to represent Radiation Counter Laboratories in the Dominion of Canada. Recent delivery of drawbench has been made to the CANEL project at Middletown, Conn., by Penn Manufacturing Co., Newington, Conn. CANEL, with Pratt & Whitney division of United Aircraft prime USAEC contractor, is working on development of nuclear powered aircraft propulsion devices.

MANUFACTURERS' LITERATURE:- New bulletin describes facilities for fabrication of nuclear fuel elements by General Electric Co.'s atomic power equipment department. It may be obtained as no. GEA-6762 from GE's electric apparatus sales division, Schenectady 5, N.Y. Film badge service offered by Controls for Radiation, Inc., 130 Alewife Brook Parkway, Cambridge 40, Mass. is described in new brochure offered by this firm which specializes in radiation hazards protection.

PRODUCT NOTES:- Estimated sales of \$4,000,000,000 over the next ten years in equipment and components for U.S. and foreign nuclear reactors are a potential for U. S. manufacturers, according to a survey prepared by Pickard-Warren-Lowe Associates, Washington consulting firm, for the Atomic Industrial Forum, New York. A year was spent in preparing the report which estimates that the annual dollar volume of sales for U. S. large nuclear reactor systems (exclusive of turbogenerator plants) will increase from about \$300 million in 1960 to a probable range of from \$550 to \$660 million in 1968. Foreign area likely to produce best volume of reactor business for U.S. suppliers will be the Euratom nations the report states: Belgium, France, Germany, Italy, Luxembourg, and Holland.

DEVELOPMENT WORK:- Nuclear energy should have "unlimited potential" for space propulsion, Lewis L. Strauss, USAEC Chairman told a space propulsion subcommittee of the Joint Congressional Committee on Atomic Energy in Washington last fortnight. Mr. Strauss said the USAEC would shortly ask the Budget Bureau for \$10.5 million more for Project Rover, a nuclear-powered rocket, and \$3 million more for Project Pluto, a nuclear-powered ram-jet rocket also under development.

An area of approximately 390,000-sq. miles in the Pacific has been established as a danger zone by the USAEC for forthcoming nuclear tests. The area, rectangular in shape, is about the same size as the danger area used in the last Eniwetok test series in 1956. East and west boundaries, however, have been shifted to the west some 120 nautical miles.

The development program for a 200,000 kw nuclear power station will be immediate responsibility of the new nuclear power plant division which Atomic Energy of Canada, Ltd., will establish. The division, located in Toronto, will direct and coordinate the project and development program. Heading it will be H. A. Smith; offices will be with the Hydro Electric Power Commission of Ontario. Major part of the development work will be undertaken by Canadian manufacturers. Detailed design of the reactor has been underway at Canadian General Electric Co. for some two years.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

February 18th, 1958

